UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AUGUST 7, 1987

Mr. B. A. Steiner
Manager, Environmental Engineering
Armco Incorporated
P.O. Box 600
Middletown, Ohio 45043

Mr. Steiner:

In your letter of May 18, 1987, you raised several questions concerning Delisting policy as it relates to waste treatment units operated at your Butler, PA facility. The issues you raise are concerned with managing the number 5 surface impoundment wastes as hazardous. However, your delisting petition #0613 applies only to the Chrome Reduction Pond (CRP). Your petition raises two concerns: the effect the CRP has had on the underlying aquifer and the adequacy of your ground water monitoring system. Before we consider the issues raised in you May 18, 1987 letter, we must resolve the concerns raised by your petition.

The data submitted to date on the CRP's impact on ground water are mixed but indicate that the CRP has potentially leached metals (including chromium and cadmium, two metals for which the CRP waste, K061, is listed). Some of the 1985 data indicates contamination above the National Primary Drinking Water Standards (NPDWS) for some metals. The 1986 data which was filtered prior to analysis indicate metal concentrations at downgradient wells at the drinking water standards. We believe that if the samples had remained unfiltered as per EPA's recommended procedures, that these levels may have exceeded the standard.

The specific information you submitted that leads us to believe the CRP sludge has adversely affected the underlying ground water aquifer is summarized below. Metal concentrations and ground water indicator parameters for monitoring data are of particular concern.

- The second, third and fourth quarters of the 1985 ground water monitoring results indicate that the chromium concentrations exceeded the regulatory standard for both the downgradient (MW-8&9) and the upgradient (MW-10) wells.

- Our information indicates that the 1985 ground water samples were collected improperly. Specifically, the wells were not purged prior to sampling. As a result, the samples may reflect constituent concentrations that are either higher, lower, or the same as the concentrations of the constituents in the aquifer. These samples are, therefore, not necessarily representative of ground water quality.

- The 1986 samples were filtered at the time of collection. This is an inappropriate method under RCRA guidelines; samples should be split when filtering is used with both filtered and unfiltered analyses submitted for evaluation. 1/ Since filtering tends to decrease the concentration of metal constituents 2/ contained in the sample, filtered samples will contain lower concentrations of metals than the leachate as it exists under the CRP. Thus, the concentrations presented for the 1986 filtered sampling are expected to be lower than the actual concentrations of these constituents in the ground water as it exists under the CRP. If the ground water contains levels of constituents that exceed regulatory standards we are unlikely to delist the waste in the CRP.

  As a result, your reported 1986 ground water monitoring data raise several concerns about selenium, lead, and cadmium. No analyses for these constituents were conducted in 1985. First, a sample from the downgradient well MW-8 on November 17, 1986 contained selenium at a concentration of 0.013 mg/L which exceeded the regulatory standard.

  Second, lead detection limits are reported as <0.10 mg/L. This value is twice the regulatory standard for lead. Therefore, your detection limit needs to be decreased below the standard (0.05 mg/l). Third, cadmium concentrations for the January 31, 1986 sampling round were reported as 0.01 mg/L. This value is equivalent to the regulatory standard for cadmium, however the actual unfiltered concentration may have exceeded the standard.

- Both 1985 and 1986 data demonstrate that the CRP has increased the concentration of chlorides, fluorides, sulfates, manganese, sodium, and nitrates in downgradient wells as compared to the upgradient well MW-10. All three quarters of the 1985 data also demonstrate an increase in pH for all downgradient wells. Theme indicator parameters support the previously mentioned metal findings, in that they identify the CRP's impact on the aquifer.

[1] See "RCRA Ground-Water Monitoring Technical Enforcement Guidance Document", Section 4.3, page 114.

[2] Approved analytical procedures for metals require that the total metals concentration be determined. These procedures discourage filtration. See "Methods of Chemical Analysis of Water and Waste," EPA-600/4-79-020.

In addition to the problems outlined above with your ground water analyses, we believe that your ground water monitoring system is inadequate. Specifically, we have evaluated well placement and construction and have concluded that your monitoring system cannot properly characterize the extent of contamination that may have been caused by the CRP. Our specific concerns are summarized below:

- Well MW-l1 (brought into service after the 1985 sampling) is not a valid downgradient well because it does not intercept ground water that flows through the CRP. Based on the map of the CRP which includes water levels, well MW-11 is laterally offset from the CRP (and thus is neither upgradient nor downgradient of the CRP)

- As reported by our Regional office, the wells for this unit may be monitoring more than one aquifer or are not screened at consistent depths within a single aquifer. Their information leads us to believe that: the shallow aquifer is not monitored by an upgradient well; the system lacks enough wells to monitor the ground water in each aquifer; and that the upgradient and downgradient wells are not screened at appropriate depths. Construction diagrams of wells MW-8 and 11 demonstrate that these wells may be inadequate.

The inadequacies of the monitoring system, sampling, and testing make definitive characterization of ground water quality difficult and the proposal of an exclusion impossible. It is our policy not to exclude any waste until it has been properly characterized and that the characterization demonstrates that the waste poses no past or present threat to the environment. In your case, existing data indicates that ground water contamination may exist. Accordingly, we plan to deny your petition. If you choose to refute this conclusion, additional 3/ data from a compliant ground water monitoring system would be necessary for proper characterization.

Thus, since we plan to deny your petition to exclude your CRP waste, we believe that the issues raised in your May 18, 1987 letter are premature for consideration. The data presented for the CRP petition indicate that the CRP may have contaminated the ground water. In addition, the data were generated from the analysis of samples that were improperly collected (unpurged well in 1985 and filtering samples in 1980) from an inadequate system (too few downgradient wells). Therefore, the information submitted cannot support any other conclusion but denial of your petition and deferral of the concerns raised in your May 18, 1987 letter.

3/ You need at least four quarters of data that include, but are not limited to, testing for all metals expected to be in the waste.

Accordingly, we will recommend to the Assistant Administrator that a denial notice be published in the Federal Register for your petition to exclude the CRP sludges. If your letter, you may submit a letter withdrawing your petition to avoid the publication of a negative finding. You will have two weeks from the date of receipt of this letter to withdraw your petition.

When you have installed an appropriate ground water monitoring system (e.g., inspected and deemed compliant by the State or our Region III Office), and collected four quarters of ground water monitoring data, you may repetition the Agency for an exclusion. Until, that time, the CRP waste is considered hazardous and subject to regulation under 40 CFR Part 262 through 268, permitting standards of 40 CFR Part 270, and additional regulation under 25 PA Code ff 75 260-282. (The State regulations require a ground water monitoring system that is capable of determining the facility's impact on any underlying aquifers.) We strongly recommend that you contact Peter Schaul, Chief of the Pennsylvania RCRA enforcement Section, USEPA, Region III in Philadelphia, at (215) 597-8334 in order to explore a mutually convenient method of correcting the deficiencies of the ground water monitoring system.

As Suzanne Rudzinski discussed with Carl Batliner, of Armco, she will be glad to meet with you and Armco officials to discuss our conclusions. You should contact Ms. Rudzinski directly at (202) 382-4206 for answers to any questions or to arrange a meeting.

Sincerely,

Marcia Williams, Director
Office of Solid Waste

cc: Peter Schaul, Region III